



1
00:00:01,940 --> 00:00:05,200
What is a wind tunnel?

2
00:00:05,200 --> 00:00:11,000
And why are they so important

3
00:00:11,000 --> 00:00:16,000
to flight and NASA?

4
00:00:19,600 --> 00:00:24,600
In a wind tunnel, controlled air is blown over

5
00:00:24,600 --> 00:00:29,640
an aircraft or spacecraft model.

6
00:00:29,640 --> 00:00:33,100
At the Unitary Plan Wind Tunnel at NASA's Ames

7
00:00:33,100 --> 00:00:36,600
Research Center in Silicon Valley,

8
00:00:38,500 --> 00:00:41,900
researchers take readings of the airspeed, sound,

9
00:00:41,900 --> 00:00:44,900
pressure and other vital details about

10
00:00:44,900 --> 00:00:48,450
how air flows around the model.

11
00:00:48,450 --> 00:00:51,240
This research helps everything from redesigning

12
00:00:51,240 --> 00:00:54,500
of wings and tails, to developing control software,

13
00:00:54,500 --> 00:00:56,500

to building accurate computer models.

14
00:00:58,810 --> 00:01:03,770
Let's look at some of the key components that

15
00:01:03,770 --> 00:01:08,380
make up a wind tunnel:

16
00:01:14,040 --> 00:01:17,400
Turning vanes

17
00:01:17,400 --> 00:01:19,470
Three-stage compressor

18
00:01:19,470 --> 00:01:25,000
11-foot test section

19
00:01:35,720 --> 00:01:40,000
A three-stage compressor, essentially a series of blades,

20
00:01:40,000 --> 00:01:44,500
provides steady airflow over a fixed model

21
00:01:44,500 --> 00:01:48,700
in the wind tunnel's test section.

22
00:01:52,800 --> 00:02:00,000
Turning vanes smooth and direct

23
00:02:00,000 --> 00:02:08,000
the flow of air over the model.

24
00:02:10,710 --> 00:02:15,000
Within the test section, banks of cameras

25
00:02:15,000 --> 00:02:20,040
and sensors record data.

26

00:02:25,000 --> 00:02:27,300

The wind tunnels at NASA in Silicon Valley

27

00:02:27,300 --> 00:02:30,000

will continue to test next generation aircraft

28

00:02:30,000 --> 00:02:32,000

and spacecraft designs,